

Application No.: 10/588,308
Attorney Docket No.: 062535
Amendment under 37 CFR §1.111

REMARKS

Claims 1-24 are pending in the present application. Claim 1 is herein amended.

Applicants request acknowledgement of consideration of the International Search Report submitted with the Information Disclosure Statement (IDS) filed August 3, 2006 (and cited in the Office Action) by initialing the box next to the International Search Report on the form PTO/SB/08 and mailing a copy of the form.

Applicants also request acknowledgement of the claim for foreign priority and receipt of the priority documents.

Claim Rejections - 35 U.S.C. § 102

Claims 1-24 were rejected under 35 U.S.C. § 102(b) as being anticipated by JP 2001-201631 (JP '631), JP 2000-352620 (JP '620), JP 2000-159840 (JP '840), JP 2001-337201 (JP '201) and JP 2002-210766 (JP '766).

Favorable reconsideration is requested.

The present invention as recited in the claims relates to a coating material for forming a coating layer directly on a surface of a transparent film. This material comprises a thermosetting resin, an inorganic filler, and a mixed solvent. The content of the thermosetting resin is determined specifically. The mixed solvent contains cyclohexanone. The content of cyclohexanone with respect to the entire mixed solvent also is determined specifically. The coating material having such characteristics achieves excellent adhesion to a transparent film even when the thickness of the coating layer is small. (See specification, paragraph 6.)

Claim 1 has been amended to recite that coating material is for forming a coating layer directly on a surface of transparent film.

1. Rejection based on JP ‘631

Applicants respectfully submit that JP ‘631 does not teach or suggest a coating material “for forming a coating layer directly on a surface of a transparent film” as recited in amended claim 1.

JP ‘631 relates to a protective film for a polarizer. Paragraphs 130 and 131 of JP ‘631 describes that a composition A for an intermediate refractive-index layer is applied over a TAC film. The composition A contains a thermosetting resin, an inorganic filler, and a mixed solvent. However, paragraph 129 of JP ‘631 describes that “a composition A shown below for an intermediate refractive-index layer was applied over a hard layer.” In other words, the composition of JP ‘631 is applied on a hard coat layer and not directly on the TAC. (See attached translation of paragraphs 125 and 126.)

2. Rejection based on JP ‘840

Applicants respectfully submit that JP ‘840 does not teach or suggest a coating material “for forming a coating layer directly on a surface of a transparent film” as recited in amended claim 1.

JP ‘840 relates to a reflection-preventing material. JP ‘840 discloses a composition B for an intermediate refractive-index layer, and the composition B contains a thermosetting resin, an inorganic filler, and cyclohexanone. However, paragraph 78 of JP ‘840 describes that “a composition B shown below for an intermediate refractive-index layer was applied over the hard

coat layer 6.” In other words, this composition is applied on a hard coat layer and not directly on a TAC. (*See* attached translation of paragraphs 76 and 77.)

3. Rejection based on JP ‘620

Applicants respectfully submit that JP ‘620 does not teach or suggest a coating material for forming a coating layer directly on a surface of a transparent film, comprising “a mixed solvent that contains at least two solvents, ... wherein ... the mixed solvent contains cyclohexanone” as recited in amended claim 1.

JP ‘620 relates to an optical film. A coating composition 1 for a reflection-preventing layer is applied on a sample 10 of cellulose acetate produced in Example 2. (*See* attached translation of paragraph 304.) This composition 1 contains titanium polymer and silane, but does not contain cyclohexanone.

4. Rejection based on JP ‘201

Applicants respectfully submit that JP ‘201 does not teach or suggest a coating material for forming a coating layer directly on a surface of a transparent film, comprising “a mixed solvent that contains at least two solvents, ... wherein ... the mixed solvent contains cyclohexanone” as recited in amended claim 1.

JP ‘201 relates to an optical film. A coating composition 1 for a reflection-preventing layer is applied over a resin film 1. (*See* attached translation of paragraph 106.) This composition 1 contains a titanium polymer and silane, but does not contain cyclohexanone.

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5. Rejection based on JP '766

Applicants respectfully submit that JP '766 does not teach or suggest a coating material for forming a coating layer directly on a surface of a transparent film, comprising "a mixed solvent that contains at least two solvents, ... wherein ... the mixed solvent contains cyclohexanone" as recited in amended claim 1.

JP '766 relates to a cellulose ester film. On a clear hard coat layer of a cellulose ester film 20, (*see* attached translation of paragraphs 237- 239), a coating composition 1 for a reflection-preventing layer is applied (*see* attached translation of paragraph 241.) This composition 1 contains titanium polymer and silane, but does not contain cyclohexanone.

For at least the foregoing reasons, claim 1 is patentable over the cited references, and claims 2-24 are patentable by virtue of their dependence from claim 1. Accordingly, withdrawal of the rejection of claims 1-24 is hereby solicited.

In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

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If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,
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Attachments: JP 2001-201631A translation of paragraphs 125, 126 and 129-131
JP 2000-159840A translation of paragraphs 76-78
JP 2001-337201A translation of paragraphs 106 and 107
JP 2002-210766A translation of paragraphs 237-242
JP 2000-352620 A translation of paragraphs 304 and 305



Partial Translation of
JP 2001-201631 A

Publication Date : July 27, 2001

5 Application No. : 2000-7674

Application Date : January 17, 2000

Applicant : Konica Corp.

(Translation of address omitted)

10 Title of the Invention : PROTECTIVE FILM FOR POLARIZER, AND
POLARIZER USING THE SAME

Translation of paragraphs [0125] and [0126]

[0125]

15 <<Preparation of upper layer liquid (6)>>

Hydroxypropyl methyl cellulose phthalate 0.5 g

(produced by Shin-Etsu Chemical Co., Ltd, trade name: HP-55)

Conductive material (IP-22) 0.2 g

Saponin (produced by Merck Ltd., surfactant) 0.03 g

20 Cross-linking agent (glyoxal) 0.03 g

Acetone 30 ml

Methanol 60 ml

Isopropyl alcohol 10 ml

25 <<Production of protective film sample 12 for polarizer>>

A protective film sample 12 for a polarizer was produced in the same manner as that in the production of the protective film sample 1 for a polarizer except for the following process: instead of a coating material for a curling preventing layer, a composition containing an ultraviolet

30 hardening-type resin as shown below was applied so as to become a layer having a dry film thickness of 4 μm ; the layer was dried at 80°C for 5 minutes, and thereafter placed under a high-pressure mercury-vapor lamp of 60 W/cm at a distance of 10 cm therefrom for 4 seconds for hardening, whereby a hard coat hardening coat layer was provided.

35 [0126]

<<Preparation of ultraviolet hardening-type resin composition (A)>>

	Dipentaerythritol hexaacrylate monomer	60 g
	Dipentaerythritol hexaacrylate dimer	20 g
	Dipentaerythritol hexaacrylate trimer and polymer greater than trimer	20 g
5	Diethoxybenzophenone UV initiator	3 g
	Silicone-type surfactant	1 g
	Methyl ethyl ketone	75 g
	Methyl propylene glycol	75 g

- 10 A pencil hardness of the hardening coat layer of the protective film sample 12 for a polarizer was measured, and the layer exhibited a hardness of 3 H. Thus, an anti-abrasion effect was exhibited.

Translation of paragraphs [0129] to [0131]

15 [0129]

- A composition A shown below for an intermediate refractive-index layer was applied over a hard coat layer and dried at 80°C for 20 minutes. Subsequently, it was irradiated by a high-pressure mercury-vapor lamp of 3 kW at a distance of 25 cm therefrom for 10 seconds for hardening, whereby
 20 an intermediate refractive-index layer was provided. It should be noted that the intermediate refractive-index layer had a thickness of 80 nm, and a refractive index of 1.66. In the present invention, the refractive index measurement was carried out by projecting light having a wavelength of 590 nm with use of an automatic birefringence meter KOBRA-21DH (produced
 25 by KS-Systems Inc.) in an environment of 23°C and 55 %RH.

[0130]

<<Composition A for intermediate refractive-index layer>>

	Titanium tetra-n-butoxide	30 g
	Diethoxybenzophenone (UV initiator)	0.1 g
30	γ -methacryloxy propyl trimethoxysilane	5 g
	Cyclohexanone	1400 g
	Isopropyl alcohol	3500 g

- 35 Next, a composition B shown below for a high refractive-index layer was applied over the intermediate refractive-index layer, and was dried at 80°C for 5 minutes. Subsequently, it was irradiated by a high-pressure

mercury-vapor lamp of 3 kW at a distance of 25 cm therefrom for 10 seconds for hardening, whereby a high refractive-index layer was provided. It should be noted that the high refractive-index layer had a thickness of 85 nm, and a refractive index of 1.90.

5 **[0131]**

<<Composition B for high refractive-index layer>>

Titanium tetra-n-butoxide	75 g
Tetraethoxysilane	8.3 g
Surfactant (F-177 produced by Dainippon Ink and Chemicals Inc.)	1 g
Cyclohexanone	2500 g
Toluene	5700 g

Thereafter, a fluorine-containing monomer composition shown below
15 was applied over the high refractive-index layer, and was dried at 80°C for 5
minutes. Subsequently, it was irradiated by a high-pressure
mercury-vapor lamp of 3 kW at a distance of 25 cm therefrom for 10 seconds
for hardening, whereby a low refractive-index layer was provided. It
should be noted that the high refractive-index layer had a thickness of 90
20 nm, and a refractive index of 1.37.

Partial Translation of JP 2000-159840 A

Publication Date: June 13, 2000

5 Application No.: 10(1998)-336193

Application Date: November 26, 1998

Applicant: Konica Corp.

(Translation of address omitted)

10 Title of the Invention: REFLECTION-PREVENTING AGENT,
REFLECTION PREVENTING MATERIAL,
PROTECTIVE FILM FOR POLARIZER, AND
POLARIZER

15 Translation of paragraphs [0076] to [0078]

[0076]

[Example 10]

As a transparent substrate, a cellulose triacetate film (KONICATAC
80UVSF produced by Konica Corporation, thickness: 80 μm) having a
20 acetylation degree of 61.0 % was used. Over one surface of the foregoing
cellulose triacetate film 5, the following ultraviolet hardening-type resin
composition A was applied, and was dried at 80°C for 5 minutes.
Subsequently, the film was irradiated by a high-pressure mercury-vapor
lamp of 3 kw at a distance of 25 cm therefrom for 10 seconds for hardening,
25 whereby a hard coat layer 6 was provided. The hard coat layer 6 had a
thickness of 3 μm , and a refractive index of 1.52.

[0077]

[Ultraviolet hardening-type resin composition A]

Dipentaerythritol hexaacrylate monomer	60 parts by weight
30 Dipentaerythritol hexaacrylate dimer	20 parts by weight
Dipentaerythritol hexaacrylate trimer and polymer greater than trimer	20 parts by weight
Diethoxybenzophenone UV initiator	2 parts by weight
Silicone-based surfactant	1 part by weight
35 Aerosil R-972 (produced by NIPPON AEROSIL Co., Ltd.)	1 part by weight
Methyl ethyl ketone	50 parts by weight

Ethyl acetate	50 parts by weight
Isopropyl alcohol	50 parts by weight

* The above composition was subjected to ultrasonic dispersion, while being
5 agitated.

[0078]

Next, a composition B shown below for an intermediate
refractive-index layer was applied over the hard coat layer 6, and was dried
10 at 80°C for 30 minutes. Subsequently, it was irradiated by a high-pressure
mercury-vapor lamp of 3 kw at a distance of 25 cm therefrom for 10 seconds
for hardening, whereby an intermediate refractive-index layer 7 was
provided. The intermediate refractive-index layer 7 had a thickness of 80
nm, and a refractive index of 1.66.

15

[Composition B for intermediate refractive-index layer]

Titanium tetra-n-butoxide	30 parts by weight
Diethoxybenzophenone UV initiator	0.1 part by weight
γ -methacryloxy propyl trimethoxy silane	5 parts by weight
20 Cyclohexanone	1400 parts by weight
Isopropyl alcohol	3500 parts by weight

Next, a composition C shown below for a high refractive-index layer
was applied over the intermediate refractive-index layer 7, and was dried at
25 80°C for 5 minutes. Subsequently, it was irradiated by a high-pressure
mercury-vapor lamp of 3 kw at a distance of 25 cm therefrom for 10 seconds
for hardening, whereby a high refractive-index layer 8 was provided. The
high refractive-index layer 8 had a thickness of 85 nm and a refractive index
of 1.90.

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Partial Translation of JP 2001-337201 A

Publication Date: December 7, 2001

5 Application No.: 2000-386938

Application Date: December 20, 2000

Applicant: Konica Corp.

(Translation of address omitted)

10 Title of the Invention: OPTICAL FILM AND LIQUID CRYSTAL DISPLAY

Translation of paragraphs [0106] and [0107]

[0106]

<<Production of resin film 12>>

15 A coating composition 1 shown below for a reflection-preventing layer was applied over a resin film 1 so as to form a layer having a wet film thickness of 10 μm , and after drying, ultraviolet light of 300 mJ/cm^2 was projected thereto (refractive index: 1.82, film thickness: 77 nm). Thereafter, a coating composition 2 shown below for a reflection-preventing layer was
20 applied so as to form a layer having a wet film thickness of 10 μm , and dried at 80°C for 30 minutes, whereby a resin film 12 (refractive index: 1.45, film thickness: 90 nm) was produced.

[0107]

(Preparation of coating composition 1 for reflection-preventing layer)

25	Titanium polymer (Nippon Soda Co., Ltd., B-4)	125 g
	Butanol	1200 g
	Isopropyl alcohol	1200 g
	Dipentaerythritol hexaacrylate monomer	3 g
	Dipentaerythritol hexaacrylate dimer	1 g
30	Dipentaerythritol hexaacrylate trimer and polymer greater than trimer	1 g
	Diethoxybenzophenone UV initiator	0.1 g
	γ -methacryloxy propyl trimethoxysilane	5 g

35 (Preparation of coating composition 2 for a reflection-preventing layer)

	Tetraethoxysilane hydrolysate *	180 g
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γ -methacryloxy propyl trimethoxysilane
Cyclohexanone

5 g
3200 g

* Method for preparing tetraethoxysilane hydrolysate

5 A solution was obtained by adding 380 g of ethanol to 250 g of
tetraethoxysilane, and in this solution, an aqueous hydrochloric acid
solution obtained by dissolving 3 g of concentrated hydrochloric acid in 235 g
of water was dropped at a slow pace at room temperature. After the
dropping, the obtained solution was agitated at room temperature for 3
10 hours, whereby tetraethoxysilane hydrolysate was prepared.



Partial Translation of
JP 2002-210766 A

Publication Date: July 30, 2002

5 Application No.: 2001-21527

Application Date: January 30, 2001

Applicant: Konica Corp.

(Translation of address omitted)

10 Title of the Invention: METHOD FOR PRODUCING CELLULOSE ESTER
FILM, CELLULOSE ESTER FILM, AND
POLARIZER AND DISPLAY DEVICE USING
CELLULOSE ESTER FILM

15 Translation of paragraphs [0237] to [0242]

[0237]

Example 5

The following composition was prepared.

[0238]

20 <<Preparation of coating composition (1) (for producing charge-preventing
layer)>>

DIANAL BR-108 (produced by Mitsubishi Rayon Co., Ltd.)

0.5 part by mass

Propylene glycol monomethyl ether

60 parts by mass

25 Methyl ethyl ketone

20 parts by mass

Ethyl lactate

5 parts by mass

Methanol

8 parts by mass

Conductive polymer resin P-1 (average particle diameter: 0.1 μ m)

0.5 part by mass

30

<<Preparation of coating composition (2) (for producing clear hard coat
layer)>>

Dipentaerythritol hexaacrylate monomer

60 parts by mass

Dipentaerythritol hexaacrylate dimer

20 parts by mass

35 Dipentaerythritol hexaacrylate trimer and polymer greater than trimer

20 parts by mass

- | | | |
|----|--|------------------|
| | Dimethoxybenzophenone photoreaction initiator | 4 parts by mass |
| | Ethyl acetate | 50 parts by mass |
| | Methyl ethyl ketone | 50 parts by mass |
| | Isopropyl alcohol | 50 parts by mass |
| 5 | <<Preparation of coating composition (3) (for producing glare-proof layer)>> | |
| | Ethyl acetate | 50 parts by mass |
| | Methyl ethyl ketone | 50 parts by mass |
| | Isopropyl alcohol | 50 parts by mass |
| 10 | SYLSIA 431 (average particle diameter: 2.5 μ m (produced by Fuji Silysia Chemical Ltd.)) | 5 parts by mass |
| | Aerosil R972V (average particle diameter: 16 nm (produced by NIPPON AEROSIL Co., Ltd.)) | 2 parts by mass |
| 15 | The foregoing composition was agitated by a high-speed agitator (TK homomixer produced by Tokushu Kika Kogyo Co., Ltd.), and thereafter dispersed by a collision-type dispersing machine (MANTON-GOLIN, produced by Golin Co., Ltd.). Then, the following composition was added thereto: | |
| 20 | Dipentaerythritol hexaacrylate monomer | 60 parts by mass |
| | Dipentaerythritol hexaacrylate dimer | 20 parts by mass |
| | Dipentaerythritol hexaacrylate trimer and polymer greater than trimer | 20 parts by mass |
| 25 | Dimethoxybenzophenone photoreaction initiator | 4 parts by mass |
| | <<Preparation of coating composition (4) (for producing back coat layer)>> | |
| | Acetone | 32 parts by mass |
| | Ethyl acetate | 50 parts by mass |
| 30 | Isopropyl alcohol | 4 parts by mass |
| | Diacetyl cellulose | 0.5 part by mass |
| | Ultra-fine particle silica (Aerosil R972V)-2% acetone dispersion liquid (produced by NIPPON AEROSIL Co., Ltd.) | 0.1 part by mass |
| 35 | The coating composition (4) was extruded so as to be applied over one surface of the cellulose acetate propionate film produced in Example 3, | |

so that a layer formed had a wet film thickness of 13 μm , and the layer thus formed was dried at a drying temperature of 80°C. On the other surface of the cellulose acetate propionate film, the coating composition (1) was applied, by wire-bar coating at a transfer rate of 30 m/min, so that a layer
 5 formed had a wet film thickness of 9 μm , and subsequently, the layer thus formed was dried in a drying section set to 80°C, whereby a resin layer having a dry film thickness of about 0.1 μm . Subsequently, the coating composition (2) was applied by gravure coating so as to have a wet film thickness of 13 μm , dried in a drying section set to 80°C, and thereafter
 10 irradiated with ultraviolet light of 120 mJ/cm² for hardening, whereby a resin layer having a dry film thickness of 5 μm was provided. This is referred to as a cellulose ester film 20 of the present invention.

[0240] A cellulose acetate propionate film was produced in the same manner except that the coating composition (2) was replaced with the
 15 coating composition (3), i.e., produced by applying the coating composition (1), the coating composition (3), and the coating composition (4). This is referred to as a cellulose ester film 21 of the present invention.

[0241] A coating composition 1 shown below for a reflection-preventing layer was applied over the clear hard coat layer of the cellulose ester film 20
 20 of the present invention so that a layer thus formed had a wet film thickness of 10 μm , and after drying, the layer was irradiated with ultraviolet light of 300 mJ/cm² (refractive index: 1.82, film thickness: 77 nm). Thereafter, a coating composition 2 shown below for a reflection-preventing layer was applied thereon so that a layer formed had a wet film thickness of
 25 10 μm , and was dried at 80°C for 30 minutes (refractive index: 1.45, film thickness: 90 nm). Thus, a cellulose ester film 22 of the present invention was produced. A cellulose ester film 23 of the present invention was formed in the same manner except that the cellulose ester film 21 of the present invention was used in place of the cellulose ester film 20 of the
 30 present invention, by applying coating compositions 1 and 2 for reflection-preventing layers over the glare-proof layer.

[0242]

<<Preparation of coating composition 1 for reflection-preventing layer>>

35	Titanium polymer (condensation product of tetrabutoxytitanium produced by Nippon Soda Co., Ltd.: B-4)	125 g
	n-butanol	1200 g

	Isopropyl alcohol	1200 g
	Dipentaerythritol hexaacrylate monomer	3 g
	Dipentaerythritol hexaacrylate dimer	1 g
	Dipentaerythritol hexaacrylate trimer and polymer greater than trimer	
5		1 g
	Diethoxybenzophenone UV initiator	0.1 g
	γ -methacryloxy propyl trimethoxysilane	5 g
<<Preparation of coating composition 2 for a reflection-preventing layer>>		
10	Tetraethoxysilane hydrolysate *	180 g
	γ -methacryloxy propyl trimethoxysilane	5 g
	Cyclohexanone	3200 g

* Method for preparing tetraethoxysilane hydrolysate

- 15 A solution was obtained by adding 380 g of ethanol to 250 g of tetraethoxysilane, and in this solution, an aqueous hydrochloric acid solution obtained by dissolving 3 g of concentrated hydrochloric acid in 235 g of water was dropped at a slow pace at room temperature. After the dropping, the obtained solution was agitated at room temperature for 3
- 20 hours, whereby tetraethoxysilane hydrolysate was prepared.

Partial Translation of JP 2000-352620 A

Publication Date: December 19, 2000

5 Application No.: 2000-88783

Application Date: March 28, 2000

Applicant: Konica Corp.

(Translation of address omitted)

10 Title of the Invention: OPTICAL FILM, POLARIZER, AND LIQUID
CRYSTAL DISPLAY DEVICE

Translation of paragraphs [0304] and [0305]

[0304]

15 (Production of resin film 10E)

A coating composition 1 shown below for a reflection-preventing layer was applied over a sample 10 so as to form a layer having a wet film thickness of 10 μm , and after drying, ultraviolet light of 300 mJ/cm^2 was projected thereto (refractive index: 1.82, film thickness: 77 nm). Thereafter, a coating composition 2 shown below for a reflection-preventing layer was applied so as to have a wet film thickness of 10 μm , and dried at 80°C for 30 minutes, whereby a resin film 10E (refractive index: 1.45, film thickness: 90 nm) was produced. This resin film 10E is referred to as a sample 10E. A resin film 10F was produced in the same manner by applying the coating compositions 1 and 2 shown below for a reflection-preventing layer, except that a sample 10C was used in place of the sample 10. This resin film 10F is referred to as a sample 10F.

[0305]

-Coating composition 1 for reflection-preventing layer

30	Titanium polymer (Nippon Soda Co., Ltd.: B-4)	125 g
	Butanol	1200 g
	Isopropyl alcohol	1200 g
	Dipentaerythritol hexaacrylate monomer	3 g
	Dipentaerythritol hexaacrylate dimer	1 g
35	Dipentaerythritol hexaacrylate trimer or polymer greater than trimer	1 g

Diethoxybenzophenone UV initiator	0.1 g
γ -methacryloxy propyl trimethoxysilane	5 g

-Coating composition 2 for a reflection-preventing layer

5 Tetraethoxysilane hydrolysate*	180 g
γ -methacryloxy propyl trimethoxysilane	5 g
Cyclohexanone	3200 g

* Method for preparing tetraethoxysilane hydrolysate

10 A solution was obtained by adding 380 g of ethanol to 250 g of
tetraethoxysilane, and in this solution, an aqueous hydrochloric acid
solution obtained by dissolving 3 g of concentrated hydrochloric acid in 235 g
of water was dropped at a slow pace at room temperature. After the
dropping, the obtained solution was agitated at room temperature for three
15 hours, whereby tetraethoxysilane hydrolysate was prepared.
